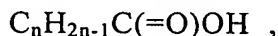


**Claims**

1. A method for preparing metal salts of unsaturated, short-chain carboxylic acids by reaction

5 - of metal-alcoholate compounds

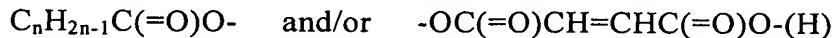
- with carboxylic acids of the general formula



wherein the double bond is in 2- or 3-position and

**n** represents 2, 3, 4, 5, or 6 and/or maleic acid

10 - in the presence of oxygen ( $O_2$ ), which is continuously fed so that its concentration in the reaction solution is at least 50 %, and the metal salts have at least one group of the formula



and the following metals or mixtures thereof

15 Al, Si, Sn, La, Zr, Cu and/or Zn.

2. The method of claim 1,

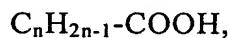
characterized in that oxygen is continuously fed so that the reaction solution is at least 90 % oxygen-saturated.

- 20 3. The method of claim 1 or 2,

characterized in that the metal salts have the general formula



25 and can be obtained by reaction of a linear or branched, unsaturated carboxylic acid of the formula



wherein **n** represents 2, 3, 4, 5, or 6 with the double bond in 2- or 3-position, preferably in 2-position, with a metal compound of the general formula



30 and, optionally,



wherein

**a** is at least 1,

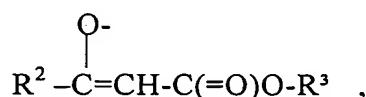
**b** is 0, 1, 2 or 3 and

35 **(a+b)** and **c** are independently of one another an integer of 2 to 4,

**M** is the metal of claim 1,

5       $\mathbf{R}^1$  represents an alcoholate group having a C<sub>1</sub> - to C<sub>6</sub> hydrocarbons residue, wherein  $\mathbf{R}^1$  is a saturated, linear or branched alcoholate group, which can be obtained from an alcohol having at least one -OH group, wherein the -OH groups are preferably primary or secondary -OH groups,

or



10     wherein  $\mathbf{R}^2$  and respectively  $\mathbf{R}^3$  represent -CH<sub>3</sub>, -C<sub>2</sub>H<sub>5</sub>, -C<sub>3</sub>H<sub>7</sub> or -C<sub>4</sub>H<sub>9</sub> and  $\mathbf{n}$ ,  $\mathbf{R}^1$ ,  $\mathbf{R}^2$ , and  $\mathbf{R}^3$  may be different for each  $\mathbf{a}$ ,  $\mathbf{b}$ , and  $\mathbf{c}$  and at least one  $\mathbf{R}^1$  in  $\mathbf{M}(\mathbf{R}^1)_c$  represents an alcoholate group having a C<sub>1</sub> - to C<sub>6</sub> hydrocarbons residue.

- 15     4. A method according to any one of the preceding claims, characterized in that the reaction is carried out in the presence of continuously fed oxygen in a gas mixture containing the oxygen in a concentration from 5 to 30, preferably 15 to 25 vol%.
- 20     5. A method according to any one of the preceding claims, characterized in that the reaction is carried out at temperatures from 0 to 150 °C, preferably 20 to 100 °C.
- 25     6. A method according to any one of the preceding claims, characterized in that the reaction is carried out at pressures from 2 bar<sub>abs</sub> to 0.01 bar<sub>abs</sub>.
- 30     7. A method according to any one of the preceding claims, characterized in that the reaction is carried out without a solvent.
- 35     8. A method according to any one of claims 1 through 5, characterized in that the reaction is carried out in at least one of the following solvents: hydrocarbons, esters, ethers, glycols, and glycol mono- or diethers.
9. A method according to any one of the preceding claims, characterized in that the carboxylic acid is acrylic acid or methacrylic acid.

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10. A method according to any one of the preceding claims,  
characterized in that the metal M is Al, Si, Sn, La, Zr, or Cu,  
particularly aluminium and/or zirconium, preferably aluminium.
- 5 11. A method according to any one of the preceding claims,  
characterized in that the metal compound is a metal alcoholate.
- 10 12. A method according to any one of the preceding claims,  
characterized in that the reaction is carried out in the absence of water  
(less than 100 ppm).
- 15 13. The use of metal salts, which can be prepared according to any one of claims  
1 to 12 and have at least one unsaturated carboxyl group with 3 to 7 carbon  
atoms in the carboxyl group or the reaction products thereof as or in coatings,  
particularly as an additive for improving hardness and/or adhesion and in  
rubbers.
- 20 14. The use of metal salts, which can be prepared according to any one of claims  
1 to 12 as coating materials or in coatings materials for leather, glass,  
ceramics, paper, cardboard, plastics, metals, and textiles.
- 25 15. The use of metal salts, which can be prepared according to any one of claims  
1 and/or 3 to 12 and have at least one unsaturated carboxyl group with 3 to 7  
carbon atoms in the carboxyl group as a monomer, particularly a co-monomer  
in polymerizations, especially radical and/or photoinitiated polymerizations.
- 30 16. The use of metal salts, which can be prepared according to any one of claims  
1 to 12 and have at least one unsaturated carboxyl group with 3 to 7 carbon  
atoms in the carboxyl group as an additive in radiation-curing adhesives- or  
plastics compositions, particularly UV-curing ones, each of which furthermore  
containing particularly photoinitiators, particularly UV initiators.
- 35 17. The use of metal salts, which can be prepared according to any one of claims  
1 to 12 and have at least one unsaturated carboxyl group with 3 to 7 carbon  
atoms in the carboxyl group in printing-ink compositions, particularly as a  
radiation-curing monomer.

18. The use of metal salts, which can be prepared according to any one of claims 1 to 12 and have at least one unsaturated carboxyl group with 3 to 7 carbon atoms in the carboxyl group or the reaction products thereof as a rheology modifier, particularly in printing-ink resins.

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19. The use of metal salts, which can be prepared according to any one of claims 1 to 12 and have at least one unsaturated carboxyl group with 3 to 7 carbon atoms in the carboxyl group or the reaction products thereof as or in barrier coatings for foils preventing permeation of oxygen and/or water.

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20. The use of the metal salts, which can be prepared according to any one of claims 1 to 12, according to at least one of claims 13 to 19,  
characterized in that the employed used compositions containing said metal salts additionally contain
- 1 to 5 wt.% photoinitiators, particularly aromatic ketones, optionally alkylated and/or alkoxylated ones, preferably with C<sub>1</sub>- to C<sub>4</sub> alkyl- and/or alkoxylate groups, and/or
  - 0.05 to 2 wt.% UV- and/or radical stabilizers, particularly alkylated and/or alkoxylated hydroxy aromatics, preferably phenols and independently thereof having C<sub>1</sub>- to C<sub>4</sub> alkyl- and/or alkoxylate groups.

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